

(19) World Intellectual Property
Organization
International Bureau



19 JAN 2005



(43) International Publication Date
5 February 2004 (05.02.2004)

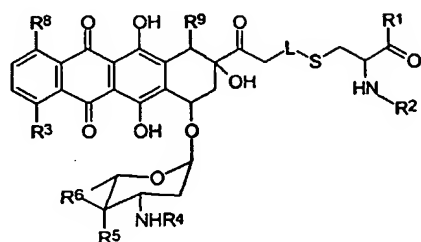
PCT

(10) International Publication Number
WO 2004/011033 A1

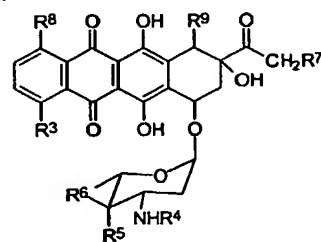
- (51) International Patent Classification⁷: **A61K 47/48**, C07H 15/252
- (21) International Application Number: PCT/EP2003/008082
- (22) International Filing Date: 23 July 2003 (23.07.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 02447145.0 24 July 2002 (24.07.2002) EP
- (71) Applicants (for all designated States except US): UNIVERSITE CATHOLIQUE DE LOUVAIN [BE/BE]; Place de l'Université 1, B-1348 Louvain-La-Neuve (BE). DIATOS S.A. [FR/FR]; 166, boulevard de Montparnasse, F-75014 Paris (FR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): FERNANDEZ, Anne-Marie [FR/BE]; 16, avenue des Lucanes, B-1070 Bruxelles (BE). DUBOIS, Vincent [BE/FR]; 72 Allée du Champ de la Mare, F-91190 Gif sur Yvette (FR).
- (74) Agents: BRANTS, Johan, Philippe, Emile et al.; De Clercq, Brants & Partners, E. Gevaertdreef 10a, B-9830 Sint-Martens-Latem (BE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report

[Continued on next page]

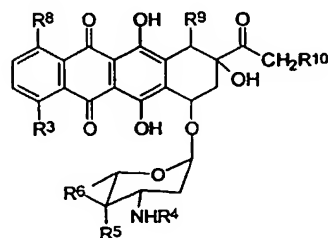
(54) Title: METHOD FOR THE SYNTHESIS OF ANTHRACYCLINE-PEPTIDE CONJUGATES



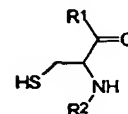
(I)



(II)



(IIa)



(III)

(57) **Abstract:** The present invention relates to a method for the preparation of a compound of formula (I) or pharmaceutically acceptable salts thereof and intermediates thereof, comprising the steps of: a) halogenating a compound of formula (II), resulting in compound of formula (IIa), b) reacting a compound of formula (IIa) at its 14 position with the thiol moiety of a peptide of formula (III), optionally in the presence of a suitable linker, to obtain said compound of formula (I), wherein R₁ represents OH, NH₂ or NH-peptide; R₂ represents H or -CO-peptide; R₃ represents OCH₃, OH or H; R₄ represents H, or COCF₃; R₅ represents OH, O-tetrahydropyranyl or H; R₆ represents OH or H; R₇ represents H, OH, OCO(CH₂)₃CH₃ or OCOCH(OC₂H₅)₂; R₈ represents OH or H; R₉ represents OH or H; R₁₀ represents a halogen and L is an optional suitable linker arm.